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THE MUSCIDÆ COLLECTED BY DR. A. DONALDSON SMITH IN SOMALI LAND.

BY GARRY DE N. HOUGH, M. D.

One cannot offer for publication a paper on Muscidæ in which species are described as new without a certain amount of misgiving. So many descriptions of Muscidæ have been published that I fear I may have overlooked some, and that I may have added to the already too long list of synonyms. I can only say that I have conscientiously tried to avoid this. My descriptions are long, but the resemblances between the Muscidæ are so close, that it is essential to describe new species at length if they are ever to be recognized by subsequent students. If any of the species described as new are already known, I shall be very glad to be informed of it and to publish the synonymy.

Considerable space has been given to the bristles of the head, and, as I have felt obliged to introduce some new names, my descriptions must be prefaced by a few remarks on these bristles.

Bristles of the Head.—The central feature of the muscid face is the frontal suture, which, taken as a whole, has the shape of an inverted U, the arms making with one another more or less of an angle.

If we draw a line across the face tangent to the convexity of this suture, then the part of the face dorsad of this line and between the eyes is the *front.* The front is distinctly divided into three parts, a median (the frontal *vitta*), and two lateral (the *geno vertical* plates). The boundary lines between the vitta and the geno-vertical plates are marked by rows of bristles (usually one row on each side of the vitta), which are inserted in a dorso-ventral line from a point on a level with the anterior ocellus to the ventral border of the front. These are the *frontal bristles.* They are in two groups which I call the *ascending frontal* and the *trans-frontal.* The *ascending* frontal, from one to four in number, are the most dorsad of the frontal bristles. If more than one is present, the most dorsad is the largest, and each succeeding one is smaller (usually much smaller) than its dorsal neighbor. They are curved dorsad, caudad and more or less laterad, and are parallel to one another.

The *trans-frontal* vary in number in different species, in the two sexes of the same species and even in different individuals of the same sex. In the female they are directed mesad and cephalad across the frontal vitta and more or less of them may decussate with their fellows of the opposite side. In the male they are generally more numerous than in the corresponding female, and they are directed cephalad with (usually) a curve dorsad or ventrad. As in the female they may decussate, but as a rule they do not.

Each geno-vertical plate is continued over the vertex to the occipital surface in the form of a little ridge. This ridge is bounded laterad by a suture which begins at the dorso-mesal angle of the eye, runs to the vertex, over the vertex to the occipital surface of the head, and then in a ventro-mesal direction as far as the great central foramen. About half way between the vertex and the great foramen the little ridge bifurcates. The lateral branch continues in about the same direction as the main ridge, while the mesal branch runs more or less directly mesad and joins its fellow of the opposite side; thus by these two little ridges and their mesal branches a triangular area is marked out at the dorso-central part of the occiput. At the very beginning of each of these little ridges just mentioned, right on the vertex, stands a bristle which is called the *inner vertical,* and down a little way on each ridge just before it bifurcates stands another which I propose to call the *occipito-central.* Both of these bristles are present in every species that I have so far had the opportunity of examining. They vary in size in different species and in the two sexes of the same species. The inner vertical project dorsad with more or less of a curve caudad and mesad, so that they sometimes decussate a little and are almost always convergent. The amount of convergence varies even in individuals of the same species and sex. The occipito-central project dorsad and mesad sometimes with a curve, sometimes without a curve, sometimes decussating a little with one another, sometimes apparently decussating with a bristle called the post-vertical, which will be described later.

On the vertex, just laterad the beginning of the little ridge and the inner vertical bristle, stands a bristle which is called the *outer vertical.* This bristle varies much in size in different species and in the two sexes of the same species. It is larger in the female than in the male, and is absent in the males of some species although present in their females.

A little caudad, ventrad and laterad of the outer vertical, on the occipital surface of the head, there is sometimes a small bristle which curves dorsad, mesad and a trifle cephalad, apparently decussating with the outer vertical. I call this the *occipito-lateral.*

Parallel to and at a variable distance caudad from the occipital margin of the eye, is a row of bristles called the *cilia of the posterior orbit.* They begin dorsad very near the outer vertical bristle but distinctly caudad of it and also very near but cephalad of the occipito-lateral. The members of the dorsal part of this row are commonly larger and more perfectly aligned than the members of the members of the ventral portion, and there is much difference in their size and correctness of alignment in different species as well as in the distance to which they can be traced ventrad as a distinct row. Frequently there are one or more rows of exceedingly small bristles intercalated between the cilia of the posterior orbit and the occipital margin of the eye. The posterior orbit is the space between the cilia of the posterior orbit and the occipital margin of the eye; it is usually narrower in the male than in the female, and may be absent.

I spoke above of a triangular area marked out at the dorso-central part of the occipital surface of the head by the two little ridges and their mesal branches. This triangle and the more or less distinct eminence on which the ocelli are situated, are continuous with one another over the vertex and form a differentiated portion which is occupied by a group of bristles which may be called the ocellar group. Among them we must distinguish the *greater ocellar* (ocellar pair of Baron Osten-Sacken), and the *lesser ocellar.*

The greater ocellar is a pair of bristles usually easily distinguishable by their larger size, which are inserted between the anterior and posterior ocelli. They vary in size, direction and curvature in different species and in the two sexes of the same species, and in different individuals (especially males) of the same species. They are generally parallel to the lesser ocellar bristles and sometimes differ from the latter in size by a very small amount.

The lesser ocellar are more numerous, from three to twelve pairs, and are usually inserted in two parallel lines (sometimes in four) which begin very close to the insertion of the greater ocellar and extend caudad a variable distance, sometimes about half way to an imaginary line joining the insertions of the inner vertical bristles, sometimes beyond this line to the occipital surface of the head.

Usually the most caudal pair of lesser ocellar is somewhat larger than the rest, sometimes much larger, and it has received the special name *post-vertical* pair. When it is much larger and at the same time is separated by quite a space from the next pair (as in the females of *Myospila, Muscina* and *Graphomyia*) the post-vertical really seem to be an independent pair of bristles, but when (as in *Musca* and *Morellia*) they are hardly distinguishable in size, are as near the next pair as that pair is to the next in the series, and still more when we find similar bristles even caudad of the post-verticals themselves it is clear that they belong to the lesser ocellar series.

In some species we can see, in the middle of the frontal vitta, a more or less distinctly differentiated dorso-ventral stripe. The ventral end of this stripe is not much above the ventral end of the frontal vitta itself. Dorsad it broadens out and then divides into two branches, one of which passes on each side of the ocellar eminence to the vertex. Inserted on the vitta some little distance below the anterior ocellus and close to this stripe (over which they decussate) we find in some species a pair of rather small bristles which I call the *preocellar.*

Bristles which are inserted on the geno-vertical plate are called *orbital.*

On each side of the face at the ventral end of the arm of the frontal suture, begins what is called the *transverse impression* of the face. This is at first a rather broad shallow depression. It passes almost horizontally laterad (becoming narrower as it proceeds) ventrad of the eye, and can be readily traced as far as the ventro-caudal angle of the eye where it usually seems to end. Sometimes, however, it can be seen to be continuous with a suture of the occiput which runs from the latero-ventral angle of the great foramen toward and sometimes to the ventro-caudal angle of the eye.

That part of the side of the face which is dorsad the transverse impression, laterad of the arm of the frontal suture and mesad of the eye is called by the German authors the wange. For this, I suggest the word gena, for reasons which will appear later. The gena is continuous dorsad with the geno-vertical plate.

Ventrad of the transverse impression and ventrad of the eye, extending ventrad to the edge of the mouth opening, cephalad to the vibrissal ridge, and continuing caudad on the occiput to the great foramen, is the part which the German authors call the Backe. For this I suggest the word *bucca.*

In English we have but one word "cheek" for the two German words Wange and Backe. The Wange is dorsad of the Backe. In Latin the word "gena" refers rather to the upper part of the cheek, the word "bucca" to the lower part. For these reasons and because the words bucca and Backe are so nearly alike, it has seemed to me wise to translate Wange by gena and Backe by bucca. The bucca is sometimes clearly defined, cephalad, from the vibrissal ridge by a distinct steep edge (I have never been able to see a suture here), at other times it is not so defined and the line of separation is an imaginary one, more or less clearly indicated by differences in the characters of the hairs and bristles of the bucca and the vibrissal ridge. That portion of the bucca which is on the occipital surface is bounded by distinct sutures. The whole bucca is hairy or bristly, the hairs and bristles varying in number and size in different species.

Mesad of the arms of the frontal suture, constituting the lateral boundaries of the facial fossa, are two distinct ridges, one on each side of the face. These are the *vibrissal ridges*, so-called because on them the stout bristles called *vibrissae* are inserted. They were called the *facialia* by Desvoidy, by Walker and by Baron Osten-Sacken, but the term used by Professor Brauer, "*Vibrissenleisten*," meaning vibrissal ridges, is so much more appropriate, that I prefer to sacrifice priority to good sense. If we follow the vibrissal ridge dorsad we find that it diminishes in width and gradually disappears from view under the gena. If we follow it ventrad we find that it gradually increases in width, being largest at a point called the *vibrissal angle*, where the largest of the *vibrissæ* is inserted. The position of the vibrissal angle with relation to the edge of the mouth-opening is not the same in all genera, being sometimes very close to it and sometimes rather remote. In all the genera to be considered in this paper, however, except *Pollenia* and *Paracompsomyia*, the two are very close together. Dorsad of the vibrissal angle we usually find one or more vibrissæ which are much smaller than the one inserted at the angle. Dorsad of the smaller vibrissæ the ridge is usually more or less thickly beset with minute bristles as far as or beyond the ventral end of the arm of the frontal suture. Ventrad of the angle there are usually a few vibrissæ.

The bristles of the legs require also a few words of introduction. These bristles have not as yet received the study that they deserve in the Muscidæ. I believe there is a typical arrangement of these

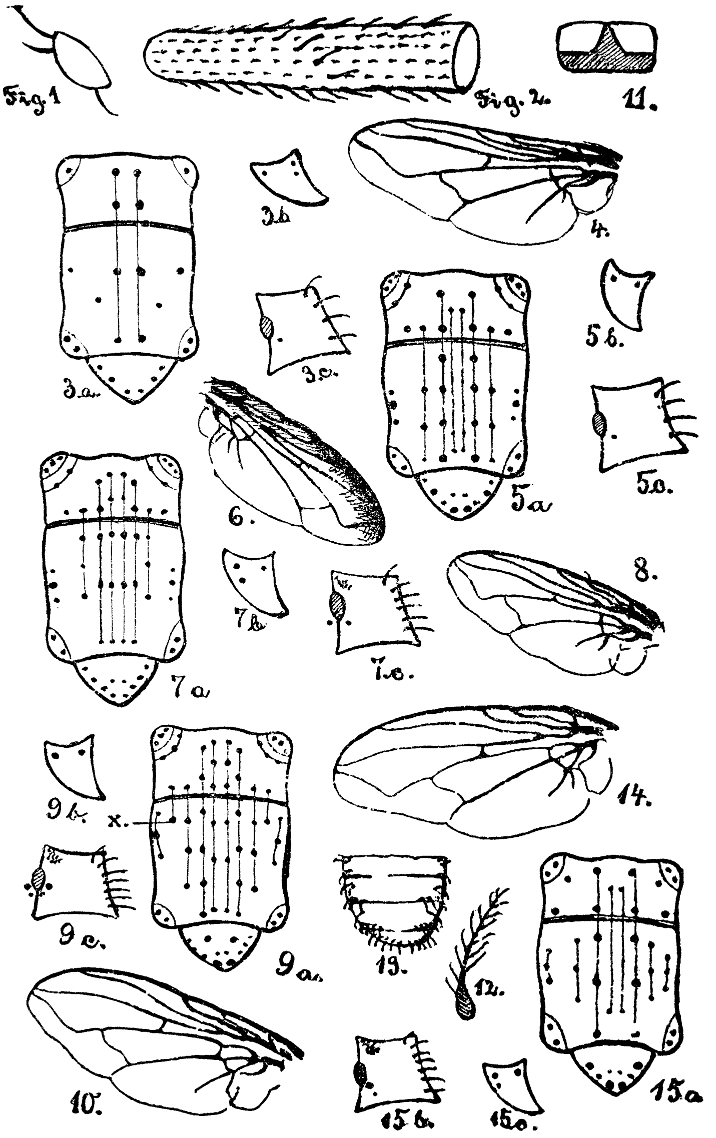
Fig. 1
Fig. 2.
11.
3.a.
3.b.
4.
3.c.
5.a
5.b.
5.c.
6.
7.a
7.b
7.c.
8.
9.a.
9.b.
x.
9.c.
14.
13.
12.
10.
15.b.
15.c.
15.a

I.

bristles subject, of course, to great variation but easily recognizable. When the limbs of a Muscid are in their natural position it will at once be seen that so far as the fore and hind legs are concerned, one surface is turned toward the median line of the body and one away from it; these are the mesal and lateral surfaces respectively. The lateral surfaces are provided with stouter and more numerous bristles as would be expected if, as is supposed, the function of the bristles is a protective one. The terms flexor and extensor need no explanation. The anterior femur in cross section has the shape I, 1, and its bristles (at least the prominent ones) are in three rows, each of which extends from base to apex. Two of these rows are near the extensor border, the one nearest that border being made up of larger bristles than the other; the third row is very near the flexor border; all three are on the lateral surface. The hind femur is shaped very like the fore femur, and has on its lateral surface an extensor row and a flexor row of bristles, corresponding to the row nearest the extensor border and the flexor row of the lateral surface of the fore femur; the mesal surface has also a flexor row, but its members are smaller and less numerous than those of the flexor row of the lateral surface. The middle femur is much less flattened than the others, and in its natural position its surfaces are anterior and posterior flexor and extensor; it has an anterior flexor and posterior flexor row of bristles and also an anterior median and a posterior median row. As a rule the median rows are incomplete, i. e., do not extend all the way from base to apex. The anterior commonly ends half way from base to apex, the most apical members of the row being the largest, the posterior often begins about half way from base to apex, and extends thence to the apex, its apical members being also the largest, and usually the apical three or four form a transverse group of considerable prominence. The tibiæ are, in cross section, almost triangular with a very well marked extensor border and with flexor, mesal and lateral (middle tibia with flexor, anterior and posterior) surfaces. The same difference in size and number of bristles that was noted in the case of the mesal and lateral surfaces of the fore and hind femora is noticeable in the corresponding tibiæ, but is not so pronounced. Each of these surfaces has, ordinarily, a flexor and extensor row of bristles. The middle tibia has also flexor and extensor rows of bristles on its anterior and posterior surfaces, and it has, in some genera, a prominent bristle on the flexor surface which does not occur (as far as my observation extends) on either of the other tibiæ, Very often the surfaces of the tibiæ have other rows besides the flexor and extensor, such are usually made up of minute bristles, except for the terminal subapical member, but sometimes one or more of the members are largely developed and in consequence an oblique row of large bristles may appear on the tibia as in I, 2.

The apical bristles of the tibiæ are remarkably constant in number, arrangement and relative size.

Although the number of specimens collected by Dr. Smith in the group Muscidæ (sens. strict.) is quite small, only thirty-eight, nevertheless the collection is very interesting, including eleven genera, of which three are new, and thirteen species of which seven are new.

Genus GLOSSINA.

Glossina longipennis Corti.

Two females taken August 19, 1894, and August 24, 1894. They agree perfectly with Corti's description, except that there are no brown spots on the abdomen.

Genus IDIA.

Idia lunata Wied.

Three females taken September 29, 1894, October 2, 1894, and November 10, 1894.

Genus COSMINA.

Cosmina sp. ?

Female, taken November 10, 1894. Too imperfect to identify or describe.

Genus MUSCA.

Musca domestica L.

Female specimen, taken October 11, 1894. This is a variety with color and markings of abdomen somewhat like the male. The ground color is a dull reddish-brown, on each of the first three segments there is a narrow, median, cephalo-caudal black stripe; the whole of the ventral surface of all segments and the cephalic half of the dorsal surface of the first segment are rather more yellow than the remainder of the dorsal surface. In color of abdomen the specimen reminds me of a female specimen sent me by Dr. Wm. A. Nason, in which the abdomen had the color and markings of the male. Structurally the specimen is identical with *domestica* although it has, to be sure, five dorso-central bristles behind the suture, but this number occurs occasionally in otherwise normal specimens both of *domestica* and *corvina*.

Musca corvina Fabr.

One male taken September 10, 1894.

Musca biseta nov. sp.

One male and four females, all taken March 10, 1894. Very much like *domestica*, from which it differs as follows:

Male.—Front about one-half as wide as in specimens of *domestica* with the same width of head. Dorsum of first abdominal segment entirely black.

Female.—Front of same width as that of specimens of *domestica* with same width of head, but the frontal vitta is decidedly narrower and its lateral borders less curved.

Both Sexes.—Smaller than the average sized *domestica*. Geno-vertical plates, genæ, buccæ and vibrissal ridges silvery white, with scarcely a trace of the yellowish tinge which so often predominates in *domestica*. Only *two dorso-central* bristles in front of the suture. Bristles of the extenso-lateral row of the hind tibia equal or almost equal. No prominent bristle in the extenso-mesal row of the hind tibia.

Genus MORELLIA.

Morellia podagrica Loew.

Two males and one female taken March 10, 1894, and April 10, 1894. Agree perfectly with, but are smaller than, my European specimens of this species.

Genus PSEUDOPYRELLIA.

Pseudopyrellia sp.?

One male and one female taken March 10, 1894. This is a new species. The specimens are too imperfect to describe fully. The antennal arista has longer, more numerous and more delicate hairs than *cornicina* (American and European specimens), and the female has on the thorax, in front of the suture, a broad, median, cephalo-caudal hoary stripe which fades out before the suture is reached. The distinctness and brilliancy of this stripe vary with the incidence of light. Of 100 American female specimens of *cornicina* examined not one has this stripe. The front of the male is much narrower than in *cornicina*.

Pseudopyrellia nuda nov. sp.

Four females taken March 10, 1894, and September 29, 1894. Length about 8 mm., of a brilliant metallic violet color, varying to bronzy-green. Remarkably few and delicate macrochætæ.

Width of head about 2.4 mm., of front about 0.7 mm. Vitta occupies about one-third of the front. The genæ and the ventral quarter or fifth of the geno-vertical plates are silvery-white or dead black, according to the incidence of the light, the remainder of the geno-vertical plates, the ocellar prominence and the dorsal half of the posterior orbit are metallic violet or green ; the ventral half of the posterior orbit is silvery white, dead black or with metallic reflections according to the incidence of the light; the buccæ are dead black or metallic violet according to the incidence of the light; the vibrissal ridges are black with slight metallic reflections ; the frontal vitta is dead black. The bristles of the vertex are as in *cornicina;* the hairs of the geno-vertical plates (there are no orbital bristles) are as in *cornicina,* but much less numerous; the bristles of the vibrissal ridges are yellowish-brown and arranged as in *cornicina;* the buccæ are sparsely beset with delicate yellowish-brown hairs. Palpi black or dark brown, dilated at the apices; proboscis black or dark brown, with some metallic reflections. Antenna, 2d joint 0.2 mm., 3d joint 0.6 mm.; color brown, 3d joint lighter than 2d. The whole thorax and abdomen has a finely punctate appearance and is remarkably free from macrochætæ, although quite as thickly clothed with fine hairs as is usual in the Muscidæ.

Bristles of thorax.—I, 3a, 3b, 3c. *Humeral,* 1. *Dorso-central,* 4, 2 in front and 2 behind the suture, the posterior is of good size, the rest are minute. *Intra-alar,* 1, very small. *Supra-alar,* 1, very small. *Post alar,* 2, as usual, of good size. *Notopleural,* 2, as usual, of good size. *Scutellar,* apical and two marginal, of good size. Tegulæ hyaline; Halteres pale yellow.

Legs.—Femora black or very dark brown, with some metallic reflections. Tibiæ and tarsi black or very dark brown ; bristles of legs much smaller and less numerous than usual in the Muscidæ.

Fore Leg.—*Femur.*—Only one extenso-lateral row of bristles, and this is made up of fewer and smaller bristles than usual. Bristles of flexo-lateral row smaller and much fewer than usual. *Tibia.*—No prominent bristles except the preapical of extensor border.

Middle Leg.—*Femur.*—The usual rows are present, but the individual bristles are small, and there are but few of them. The only respectable sized bristle of the femur is the preapical of the posterior surface. *Tibia.*—Anterior surface no bristles at all. *Posterior surface.*—One prominent bristle at the middle of the tibia and a varying number of other much smaller bristles. *Flexor surface.*—

One large bristle, about twice as large as the largest of the posterior surface, at the junction of the third and apical fourths, inserted close to the edge of the posterior surface.

Hind Leg.—Femur.—The usual rows present but of fewer and smaller bristles than usual. *Tibia.*—No prominent bristles save one very delicate flexo-lateral.

Genus POLLENIA.

I might consider the species to be here described as the type of a new genus in deference to the views of Professor Brauer as I understand them. He gives as one of the characters of *Pollenia:* "two orbital bristles in the female." These specimens have from four to six orbital bristles of large size inserted in a dorso-ventral line roughly parallel to the insertions of the trans-frontal bristles and laterad these large orbitals and parallel to them another row of very small bristles. I am sure that the number of large orbital bristles may vary in individuals of the same species and, therefore, am personally of the opinion that their number is not always a character of generic value, e. g., in our common species of *Morellia* the number of large orbital bristles varies from two to seven, frequently differing on the two sides of the same specimen. Such being the case, it seems to me that I must include this species in *Pollenia* since it presents all the characters of that genus except the one mentioned. The woolly hair is present only on the caudal border of the mesopleura, caudad the row of bristles which protect the root of the wing, a condition often met with in our common *P. rudis* if the specimen is not fresh. The specimens look as if they had been wet.

Pollenia virido-cana nov. sp.

Three females taken September 5, 1895. Length about 7.5 mm.; width of head about 2.2 mm., of front about 0.75, of frontal vitta about 0.25 mm. Looking at the head directly from in front, the height of the eye is 1.3 mm., of the bucca 0.4 mm. The highest point of the vertex is a little higher (about 0.1 mm) than the highest point of the eye. The third antennal joint is twice as long as the second.

The general color of the fly is a dirty greenish-white or gray. On close examination it is seen that the ground color of the thorax and abdomen is a metallic green, but that this is more or less concealed by a thick, whitish, hoary coating. In some lights there seem to be two dorso-central bands on the thorax which are free from this coating. The anterior femora are of the same colors as the thorax, the middle and posterior femora are dark brown, with here and there suggestions of the green color and hoary coating. The tibiæ and tarsi are a very dark brown. Tegulæ milky white. Halteres brownish. The genæ, geno-vertical plates, ocellar triangle, posterior orbits, buccæ and vibrissal ridges are dirty white with the usual silky lustre, varying according to the incidence of the light to a pale brown. Frontal vitta pale brown. Antennæ: second joint pale brown, third joint darker brown with hoary coating.

Bristles of Head.—Inner vertical, outer vertical, greater ocellar, and ciliæ of posterior orbit as in *P. rudis.* Lesser ocellar less numerous than in *rudis*, only three or two pairs. Ascending frontal, one, large. Transfrontal six to eight, mostly decussate over the narrow vitta. Orbital: a row of four to six large bristles, the insertions of which are roughly parallel to the insertions of the transfrontals; a second row laterad the large ones and parallel to them composed of very small bristles. Genæ bare. Buccæ with a series of stout bristles along the edge of the mouth opening and with the remainder of their surface sparsely beset with very fine hairs. Vibrissal ridges with a very few hairs dorsad the principal vibrissa extending little or not at all dorsad the ventral end of the arm of the frontal suture.

Bristles of Thorax, I, 5a, 5b, 5c. *Humeral,* 3. *Post-humeral,* 2. *Dorso central,* 6, two in front of and four behind the suture. *Acrostichals* very small, one anterior and two posterior to the suture. *Intra-alar,* 4, one in front of and three behind the suture; the most posterior is very small and a little mesad the line of the others. *Supra-alar,* 3, of which, as usual, the middle one is much the largest. *Post-alar,* 2, as usual. *Notopleural,* 2, as usual.

Scutellar.—A small bristle of the jugum, an apical, two marginal and a rather small discal.

Bristles of Abdomen.—As usual in Muscidæ (sens. strict.).

The macrochaetæ of the head and thorax and nearly all the minute bristles and hairs of the thorax and abdomen appear to be inserted at the centres of little black disc-shaped spots.

Bristles of the Legs.—Too imperfect to be described. The only especially noteworthy feature that can be made out is a long, stout bristle at the middle of the anterior surface of the middle femur. This represents, apparently, the anterior median row of bristles of the middle femur that is so universally present in the Muscidæ (sens. strict.) and is so well developed in *P. rudis.*

Genus **LUCILIA.**

Lucilia spinicosta nov. sp.

One male and one female, taken March 10, 1894. Length: about 5.5 mm. (male) and 6.0 mm. (female). Width of head: male 2.0 mm. female 2.2 mm. Width of front: male 0.1 mm. at narrowest part, females 0.8 mm., vitta of female 0.5 mm. Third antennal joint twice as long as the second.

Color.—The usual metallic green of Luciliæ with some hoary reflections. Legs yellowish-brown, femora much darker than tibiæ and tarsi. Tegulæ: inferior dark smoky brown almost black, superior hyaline. Halteres yellowish. Genæ, geno-vertical plate, posterior orbit, buccæ and vibrissal ridges silvery-white. Antennæ: second joint and base of third yellowish-brown, remainder of third chestnut-brown. Palpi yellowish-brown. Wings hyaline, slightly stained with yellowish-brown toward the costal border.

On the costal border of the wing, basad of but very close to the end of the auxiliary vein, is a good sized spine. On both the upper and under surfaces of the wing the third longitudinal vein bears a number of minute spines, those beneath are four or five in number and much more delicate than those above, those above are ten or twelve in number and extend nearly to the small cross vein.

Bristles of the Head.—As usual in Luciliæ.

Bristles of the Thorax.—I, 7a, 7b, 7c. *Humeral,* 3. *Post humeral,* 2. *Dorso-central,* 5, 2 in front and 3 behind the suture. *Intra alar,* 4, one in front and 3 behind the suture. *Acrostichal,* 5, 2 in front and 3 behind the suture. *Presutural, notopleural, supra alar* and *post alar* as usual. *Scutellar,* apical, 3 marginal and one discal. Sternopleura and mesopleura as usual in Luciliæ.

Bristles of Abdomen.—On hind border of second segment a number of small appressed bristles. On hind border of third segment about twelve to fourteen larger and less appressed bristles. On the fourth segment about twelve not at all appressed quite good sized bristles both marginal and discal. In the male these bristles are larger than in the female.

Bristles of the Legs.—Fore Leg.—Femur: as usual but dorsal lateral extensor row has only about six members. Tibia: in the lateral extensor row there is in the male, but not in the female, a little basad the junction of middle and apical thirds one rather prominent bristle; in the lateral flexor row there is one large bristle at the junction of the apical and middle thirds; in the mesal extensor row there are no prominent bristles; in the mesal flexor row there are about four prominent bristles and these are larger in female than in the male.

Middle Leg.—Femur: as usual. Tibia: the anterior surface, a little apicad the middle, has one large bristle; the posterior surface has two rather smaller, one at the middle and one near the apical end of the basal third; flexor surface has one at about the junction of the middle and apical thirds.

Hind Leg.—Femur: as usual. Tibia: the lateral extensor row has from three to five prominent bristles and the mesal extensor row two, of which one is very near the middle and the other in the basal quarter; no prominent bristles in either flexor row.

Genus **PAROCHROMYIA.**

The species to be here described would find its place in the table of Brauer and Bergenstamm[1] between *Ochromyia* and *Zonochroa.*

The eyes of the male are very close together but not in contact and the male has no transfrontal bristles above the middle point between the base of the antennæ and the vertex. Both sexes have ocellar bristles. Both sexes have abdominal marochætæ at the sides of each segment, on the hind margin of the third segment (appressed and delicate), and on the fourth; the male also has some on the hind margin of the second but they are more delicate than those of the third. The female has one fair sized orbital bristle at the upper part of the geno-vertical plate and, extending ventrad from this, a series of very delicate, minute bristles or hairs which extend along the whole of the geno-vertical plate and on the gena about half way to the end of the arm of the frontal suture.

In Girschner's system I should place this species among the Calliphorinæ with the description of which it agrees[2] except that it has three posterior intra-alar bristles. The sterno-pleural bristles have the arrangement 1–1. I can not make out the arrangement of the second ventral segment.

Parochromyia varia nov. sp.

Three males and three females, taken March 10, 1894, Nov. 17, 1894, Sept. 3, 1895. A pale yellowish-brown fly about 6.5 to 7.5 mm. long. The wings are notably broad and extend a little beyond the apex of the abdomen.

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[1] Vorarbeiten zu einer Monogr., etc., Pars III, p. 90, (178).

[2] Separat-Abdruck aus der Illustrirten Wochenschrift für Entomologie, Vol. I, 1896, p. 14.

Head.—The antennæ, buccæ, genæ, vibrissal ridges, facial fossa and ventral third to half of the geno-vertical plate are all pale yellowish-brown. The remainder of the geno-vertical plate is bluish gray. The frontal vitta is brown with a slight reddish tinge. The posterior orbit differs in the two sexes. In the female it is about 0.1 mm. wide, bluish-gray dorsally and shading off ventrally to pale yellow; in the male it is narrower, entirely absent along the dorsal third or half of the eye and entirely yellow. In the female the front occupies about one-third of the width of the head and is mostly made up of the frontal vitta the geno-vertical plate being very narrow.

Bristles of the head.—Female:—Seven to nine transfrontal of good size and a few small intercalary, sometimes the larger ones decussate and sometimes not, they extend a little ventrad the insertion of the antennæ. Ascending frontal, one. Orbital as mentioned in the generic description. Greater ocellar, of good size, divergent. Lesser ocellar, several pairs all parallel to the greater; one very small pair is situated ventrad the greater, there are several small pairs dorsad the greater and one pair at the dorsal border of the ocellar triangle is half to three quarters the size of the greater. Inner vertical and outer vertical, inserted as usual, equal; only a little larger than the ascending frontal, larger than the greater ocellar. Post vertical small, erect, parallel to one another, inserted on the occipito-vertical border a trifle caudad the line of the inner verticals. Occipito-central, very small and delicate, inserted very close to the occipito-vertical edge. Occipito-lateral not present. Ciliæ of posterior orbit rather sparse but well aligned, extending ventrad to the caudo-ventral angle of the eye. Bucca: vertical diameter as seen from in front nearly one half that of eye; along edge of mouth-opening a series of large stout bristles, the remainder sparsely beset with minute hairs. Vibrissal ridges: a few minute bristles dorsad the principal vibrissa extending to a point a very little dorsad the ventral end of the arm of the frontal suture.

Male:—Transfrontal, as mentioned in the generic description, about seven in number. Inner vertical good sized. Outer vertical absent as is usual in male Muscidæ. Greater ocellar much smaller than in the female (the usual thing in Muscidæ). Lesser ocellar, quite numerous, some of them almost equal to the greater. Post vertical as in the female. Occipito-central (doubled in one specimen), ciliæ of posterior orbit, bucca and vibrissal ridges as in female.

Antenna.—Third joint about twice as long as the second. Arista longer than second and third joints together, its hairs rather few (about eight above and six below). The exact shade of color varies in different specimens, being sometimes darker and sometimes lighter; in one female the third joint is almost a chestnut-brown. Proboscis and palpi yellowish-brown.

Thorax.—Color, varying shades of yellowish-brown, darker on the dorsum. On the dorsum, bands of dark brown or bluish-gray, varying much in width in different specimens (in one male none at all). A dark spot on the middle of the scutellum in all the females and in one male.

Bristles of the Thorax, I, 9a, 9b, 9c. *Humeral,* 3. *Posthumeral,* 3, outermost on a level ventrad the presutural. *Dorso-central,* 6, two in front and four behind the suture. *Intra-alar,* 4, one in front and three behind the suture. *Acrostichal,* 6, three in front and three behind the suture. *Presutural,* notopleural, supra-alar and post-alar as usual. *Post-sutural,* I venture to apply this name to a bristle, present in all the specimens of this species, which I have not been able to find in any other Muscids that I have seen. It is situated caudad the transverse suture of the thorax, a little mesad and caudad the anterior supra-alar, and laterad the intra-alar No. 3 (I number the intra alars, dorso-centrals and acrostichals from the caudal end of the thorax cephalad, thus the intra-alar nearest the scutellum is No. 1).

Scutellar.—Apical, three marginal, jugal, two discal of which the anterior is considerably the larger.

Abdomen.—Color: Principally yellowish-brown; of varying shade in different specimens. There are also some very dark brown, almost black, markings as follows: on the first segment a very narrow band on the hind margin; on second segment a broader band and a median mark, (I, 11) the width of the band and the size of the mark varying considerably; third segment like second, but the band broader and the mark larger, so that in some specimens almost the whole segment is dark brown or black: fourth segment entirely black or dark brown.

Bristles.—There are bristles on the hind borders of the first three segments. Toward and at the sides of the segments the bristles are larger than toward the middle. All are more or less appressed. Those toward the middle can hardly be called macrochaetae until we reach the third segment. On the fourth there are some discal as well as marginal macrochaetae, and they are none of them appressed.

Legs.—Color: Yellowish-brown. Bristles: Fore-leg, femur, as usual. Tibia, lateral flexor row has one large bristle at the junction of the middle and apical thirds, mesal extensor row has from four to six rather small bristles about equal and equi-distant, extending from very near the base to very near the apex. *Middle leg:* Femur, as usual, but the anterior median row is represented by only one bristle of good size which is situated just at the middle of the femur. On the whole, the bristles of this femur are rather few. Tibia: Anterior surface, one large bristle at junction of apical and middle thirds; posterior surface two, rather smaller at junction of basal and middle, and middle and apical thirds respectively; flexor surface one, rather small at junction of apical and middle thirds. *Hind leg:* Femur, as usual. Tibia, mesal extensor row has usually two prominent but not very large bristles situated respectively at the junction of the basal and middle, and middle and apical thirds (sometimes the former is absent); lateral extensor row has a considerable but varying number of unequal but almost equidistant bristles extending from base to apex; lateral flexor row is represented by only one bristle situated at the junction of the apical and middle thirds.

Genus SOMALIA.

There is but a single specimen, and that a female of the species on which I found this new genus, but the characters are so pronounced that I have no hesitation in so doing. In the table of Brauer & Bergenstamm[3] this genus would fall in the group with *Dasyphora*, except that it has but one large orbital bristle. It differs, however, from *Dasyphora* in several points: (1) the sternopleural bristles have the arrangement 2–1, instead of 1–3; (2) there is a row of bristles on the hypo-pleura; (3) the third joint of the antenna is much shorter as compared with the second; (4) the outline of the arista as a whole is much narrower, and its hairs are less closely set; (5) the eyes are only minutely hairy with a magnification of twenty diameters; (6) the post-vertical bristles are very small, while in *Dasyphora* they are large.

In Girschner's classification the new genus stands far away from *Dasyphora* in the 6th or 7th group of his Tachinidæ.

Somalia enigmatica nov. sp.

One female, taken October 11, 1894.

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[3] Vorarb. zu Monog. Musc. Schiz., Part III, p. 90 et seq.

Length about 8.0 mm. Width of head 2.5 mm., of front 0.9 mm. (vitta 0.5 mm., geno-vertical plates each 0.2 mm.). Looked at squarely from in front the dorso-ventral diameter of the head is 2.3 mm., the vertex extends 0.1 mm. dorsad the eyes, the dorso-ventral diameter of the eye is 1.5 mm., of the bucca 0.7 mm. Third antennal joint about 1½ times as long as the second. General color pale olive-green with a hoary coating, legs a yellowish-brown, except that the third, fourth and fifth tarsal joints and the apical part of the second are black. On the thorax, in front of the suture, are two narrow bands, one on each side, between the acrostichal and dorso-central bristles, which have no hoary coating; these bands broaden cephalad and unite at the cephalic border of the thorax. On the second, third and fourth abdominal segments there is a narrow, median, cephalo-caudal dark brown stripe not represented in the diagram, I, 13, which shows also the arrangement of the abdominal bristles.

Head.—Color: Genae, geno-vertical plate, facial fossa, vibrissal ridges, posterior orbits and ocellar prominence silvery; vitta dark brown; bucca olive; transverse impression of the face yellowish-brown with silvery coating. Second joint of antennæ yellowish-brown, third joint darker with a hoary coating. Palpi yellowish-brown. Proboscis black.

Bristles: Trans-frontal, about eight, of which the ventral four or five are of good size and inserted close together, the rest small and scattered. Ascending frontal, one, large. Orbitals, one large at about the junction of the dorsal and middle thirds of the front and one exceedingly minute a little dorsad the large one, no others at all. The bristles at the vertex are somewhat injured, and I can only say that the inner vertical, outer vertical, greater and lesser ocellar, post-vertical (very small), and ciliae of the posterior orbit are present; nothing unusual can be made out in regard to them in this specimen. Genæ naked. Buccæ distinctly separated from the vibrissal ridges; parallel to the edge of the mouth-opening and a little distance from it is a row of coarse bristles; near the cephalic end of the bucca about as far dorsad the large bristles of the mouth-edge as they are from the mouth edge itself, are two stout bristles about equal in size to those of the mouth edge; the rest of the bucca is rather sparsely beset with minute bristles and hairs. Vibrissal ridges: The principal vibrissa and the vibrissal angle are close to the edge of the mouth opening; dorsad the principal vibrissa there are only a few minute bristles not extending as far as the ventral end of the arm of the frontal suture; ventrad the principal vibrissa are four lesser vibrissæ inserted along the edge of the mouth opening as far as the cephalic end of the bucca.

Thorax.—Color, as mentioned above. Halteres yellow. Tegulæ hyaline, milky white toward the edges.

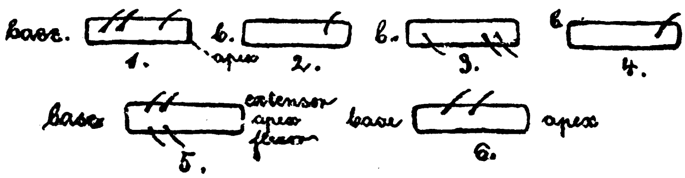
Bristles, I, 15a, 15b, 15c. *Humeral,* 2. *Posthumeral,* 1, on a level dorsad the presutural. *Dorso-central,* 5, two in front and three behind the suture. *Intra-alar,* 3, none in front of the suture. *Acrostichal,* 2, one in front and one behind the suture, both small. .Presutural, notopleural, supraalar and postalar as usual. *Scutellar:* apical, two submarginal and one small discal or subapical.

Mesopleural. At the dorso-cephalic angle is a group of little hairs, among which two are more prominent than the rest, and perhaps deserve to be called bristles, an arrangement recalling the prominent bristle in this situation which is so constant in the genera *Morellia, Muscinia, Musca, Myospila* and their allies. As usual, there is a large bristle just ventrad the prostigma, a little ventrad and caudad this bristle is another, much smaller but decidedly prominent, which I have not found in any other Muscid.

Sternopleural. Two in front and one behind. *Pteropleural* and *hypopleural* present.

Wing. Venation shown in the figure. On the third longitudinal vein are about ten little spines quite regularly distributed from the base to near the small cross vein. There is a costal spine just basad the end of the auxiliary vein.

Ventral surface of abdomen. No ventral membrane; second ventral segment overlaps the edges of the corresponding dorsal, all the other ventral segments are overlapped by the corresponding dorsal.



II.

Bristles of the Legs.—Anterior femur as usual. Anterior tibia: lateral flexor row has one large bristle at the junction of the middle and apical thirds; mesal extensor row has three prominent bristles as arranged in II, 1. Middle femur has one large bristle at the middle of the anterior surface, a few bristles in the flexor row of each surface, and on the posterior surface a subapical transverse group of three. Middle tibia has one on the anterior, II, 2, three on the posterior, II, 3, and one on the flexor, II, 4, surface. Posterior femur as usual. Posterior tibia has four on the lateral surface (two flexor and two extensor, II, 5), and two on the mesal surface II, 6.

Genus **PARACOMPSOMYIA.**

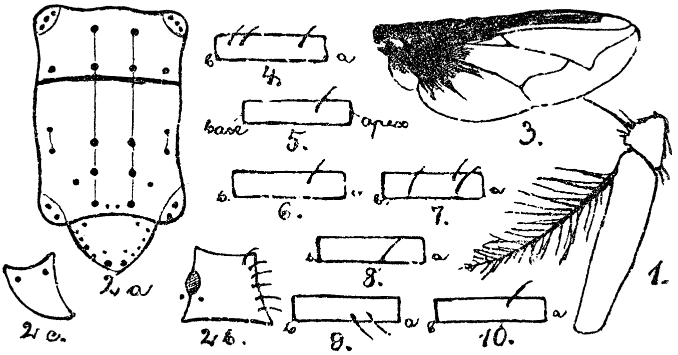
Very close to *Compsomyia*. In the table of genera of Brauer and Bergenstamm it would fall with *Compsomyia* from which it differs as follows: wings not hyaline but, toward base and costa, black or very dark brown; thorax without longitudinal black stripes; the vibrissal angles are not as far dorsad the mouth edge as in *Compsomyia*; there are no vibrissæ ventrad the principal vibrissa; the orbital bristles are much smaller than in *Compsomyia* and are directed laterad instead of ventrad; the sterno pleural bristles are 1–1 instead of 2–1.

Paracompsomyia nigripennis nov. sp.

Four females, taken August 23, 1894. Large metallic blue, violet or green flies with yellow heads, black legs and with the costal border and basal half of the wings black or very dark brown. Length of body 11 to 12 mm., of wing 10 mm. Width of head 5 mm.; of front 1.7 mm. at base of antennæ, 1.8 mm. at vertex; frontal vitta 1 mm. at widest point, 0.7 mm. at base of antennæ. Looked at squarely from in front the dorso-ventral diameter of the head (height) is 4.2 mm., the vertex extends 0.2 mm. dorsad the dorsal border of the eyes, the dorso-ventral diameter of the eye is 2.5 mm., of the bucca 1.5 mm. The second antennal joint is 0.3 mm. long, the third is 1.1 mm.

Head.—Color:—dorsal two-thirds of geno-vertical plate is polished ferruginous, the ventral third as also the genæ, buccæ, vibrissal ridges and facial fossa are a paler, yellowish-brown with a thin hoary coating. Vitta ferruginous. Antennæ yellowish-brown. Ocellar prominence and an adjoining triangular area of varying size at the dorsal part of the occiput ferruginous to yellowish-brown varying in different specimens. Posterior orbit silvery. Palpi yellow. Proboscis dark brown to black.

Bristles.—Inner vertical and outer vertical of good size, inserted as usual. Post vertical very small, inserted a little caudad the line of the inner verticals. Occipito-central replaced by a number of minute bristles. Ciliæ of posterior orbit as usual, well aligned, rather small. Greater ocellar very small, divergent, pointing almost directly laterad. Lesser ocellar exceedingly minute, numerous, in four to six rows, occupying nearly the whole of the ocellar prominence and extending caudad to or nearly to the line of the inner verticals. Ascending frontal, one, parallel to the outer vertical, inserted on a level with the greater ocellar some distance laterad the line of insertion of the transfrontals half way between that line and the lateral border of the geno-vertical plate. Transfrontals ten to twelve, small, non deccusate. Orbitals two, very small (0.2 to 0.3 mm. long), curved laterad instead of ventrad as usual, inserted about at the middle (dorso-ventrally) of the geno-vertical plate and 0.3 or 0.4 mm. (dorso-ventrally) from each other; besides these two orbitals the geno-vertical plate is quite thickly clothed with very minute hairs or bristles which toward the vertex are black and toward the genæ are whitish or colorless. Genæ, clothed like the geno-vertical plates with exceedingly delicate and minute whitish hairs. Buccæ clothed like the genæ, but toward the occiput the hairs are much longer than elsewhere (as much as 0.2 mm.). Vibrissal ridges almost straight, only very slightly convex laterad;



III.

Humeral, 3. *Dorso-central*, 5, 2 in front of and 3 behind the suture. *Intra-alar*, 1. *Supra-alar*, 2. *Acrostichal*, 1, posterior. *Presutural, notopleural* and *postalar* as usual. *Scutellar:* Apical, four marginal and two discal as figured.

vibrissal angle and principal vibrissa a little above the mouth edge but not as high as in *Compsomyia macellaria* or in *Pollenia*; the principal vibrissa is very small for the size of the fly; there are no other vibrissæ but the ridges are clothed nearly their whole length with exceedingly minute whitish hairs.

The arista is about as long as the third antennal joint and is densely plumose with fine hairs. Its rhachis is yellow toward the base while its apical part and the hairs appear black.

Thorax.—Color.—Metallic blue, violet or green with hoary coating. The hoary coating is much thicker in front of than behind the suture. The prostigma is very large and is white. Halteres yellowish. Tegulæ white with smoky brown or black border of very varying width.

Bristles.—There is a row of bristles on the hypopleura and some bristles on the pteropleura.

Abdomen.—Color.—Metallic blue, violet or green with a hoary coating which is thickest toward the sides and on the ventral surface. The first segment and the caudal borders of the second and third are not hoary. The fourth segment is quite thickly covered with whitish hairs. There are no abdominal macrochætæ. The second ventral plate overlaps the corresponding dorsal plates a very little, the other ventral plates are overlapped by the corresponding dorsal plates.

Bristles of the Legs.—Femora as usual in the Muscidæ. Tibiæ: anterior tibia has on the mesal surface in the extensor row three prominent bristles III, 4, and on the lateral surface in the flexor row one III, 5; middle tibia has on the anterior surface one III, 6 on the posterior surface three III, 7, and on the flexor surface one III, 8; hind tibia has on the lateral surface in the flexor row two III, 9, and on the mesal surface, in the extensor row, one III, 10.

EXPLANATION OF FIGURES.

I.

1. Cross section of anterior femur of a Muscid.
2. Formation of an oblique row of bristles on the tibia.

3a. Bristles of thorax of *Pseudopyrellia nuda* nov. sp.
3b. Bristles of sternopleura of *Pseudopyrellia nuda* nov. sp.
3c. Bristles of mesopleura of *Pseudopyrellia nuda* nov. sp.
4. Wing of *Pseudopyrellia nuda* nov. sp.
5a. Bristles of thorax of *Pollenia virido-cana* nov. sp.
5b. Sternopleura of *Pollenia virido-cana* nov. sp.
5c. Mesopleura of *Pollenia virido-cana* nov. sp.

6. Wing of *Pollenia virido-cana* nov. sp.
7a. Bristles of thorax of *Lucilia spinicosta* nov. sp.
7b. Sternopleura of *Lucilia spinicosta* nov. sp.
7c. Mesopleura of *Lucilia spinicosta* nov. sp.
8. Wing of *Lucilia spinicosta* nov. sp.
9a. Bristles of thorax of *Parochromyia varia* nov. sp.
9b. Sternopleura of *Parochromyia varia* nov. sp.
9c. Mesopleura of *Parochromyia varia* nov. sp.
10. Wing of *Parochromyia varia* nov. sp.
11. Marking of abdominal segment of *Parochromyia varia.*
12. Arista of *Somalia enigmatica* nov. sp.
13. Abdomen of *Somalia enigmatica* nov. sp.
14. Wing of *Somalia enigmatica* nov. sp.
15a. Bristles of thorax of *Somalia enigmatica* nov. sp.
15b. Mesopleura of *Somalia enigmatica* nov. sp.
15c. Sternopleura of *Somalia enigmatica* nov. sp.

II.

Diagrams of positions of bristles of tibiæ of *Somalia enigmatica.*
1. Anterior tibia; mesal surface, extensor row.
2. Middle tibia; anterior surface.
3. Middle tibia; posterior surface.
4. Middle tibia; flexor surface.
5. Posterior tibia; lateral surface.
6. Posterior tibia; mesal surface.

III.

1. Antenna of *Paracompsomyia nigripennis* nov. sp.
2a, 2b, 2c. Thorax, mesopleura and sternopleura of same
3. Wing of same.
4 to 10 positions of bristles of tibiæ of same.